

WHAT IS CLAIMED IS:

1. A liquid crystal display, comprising
a front polarizer layer, wherein the transmission axis is angularly displaced from 2° to 10° with respect to a predetermined reference axis,
5 a rear polarizer layer, wherein the transmission axis is angularly displaced from 80° to 88° with respect to the predetermined reference axis,
a super-twist nematic liquid crystal layer positioned between the front and rear polarizers and characterized by a director twist angle in the range from 230° to 250° ,
a front alignment layer, wherein the alignment direction is angularly displaced from
10 140° to 160° with respect to the predetermined reference axis,
a rear alignment layer, wherein the alignment direction is angularly displaced from -140° to -160° with respect to the predetermined reference axis, and
wherein at least one polarizer is a thin crystal film polarizer of negative birefringence.
- 15 2. The liquid crystal display according to Claim 1, further comprising a backlighting system positioned on a rear side of the display.
3. The liquid crystal display according to and of Claim 1 or 2, further comprising a
reflecting layer on the rear side of the display.
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4. The liquid crystal display according to Claim 3, wherein the reflecting layer has a specular reflection.
5. The liquid crystal display according to Claim 3, wherein the reflecting layer has a
25 diffusive reflection.
6. The liquid crystal display according to any of Claims 1-5, further comprising a transfective layer on the rear side of the display.
- 30 7. The liquid crystal display according to Claim 6, wherein the transfective layer has a specular reflection.

8. The liquid crystal display according to Claim 6, wherein the transfective layer has a diffusive reflection.
- 5 9. The liquid crystal display according to any of Claims 1-8, wherein the thin crystal film polarizer is made from at least one dichroic dye material comprising aromatic rings, and an interplanar distance along the transmission axis is 3.4 ± 0.3 Å.
- 10 10. The liquid crystal display according to Claim 9, wherein the dichroic dye material is heterocyclic.
11. The liquid crystal display according to Claim 9 or 10, wherein the dichroic dye is capable of forming a stable lyotropic liquid crystal.
- 15 12. The liquid crystal display according to any of Claims 1-11, further comprising an antireflective or antiglare coating.
13. The liquid crystal display according to any of Claims 1-12, wherein a diffuse light-scattering material is incorporated into at least one layer.
- 20 14. The liquid crystal display according to any of Claims 1-13, wherein the thickness of the layers is selected in order to provide the maximum interference intensity at the front side of the display for the light within the wavelength region of 530 nm to 580 nm.
- 25 15. The liquid crystal display according to any of Claims 1-14, wherein at least one polarizer layer is placed inside the liquid crystal display.
16. The liquid crystal display according to any Claims 1-15, wherein the thin crystal film polarizer additionally functions as a color filter.
- 30 17. A liquid crystal display, comprising
a front polarizer, wherein the transmission axis is angularly displaced from 92° to 100° with respect to a predetermined reference axis,

a rear polarizer, wherein the transmission axis is angularly displaced from 80° to 88° with respect to the predetermined reference axis,

a super-twist nematic liquid crystal layer positioned between the polarizers and characterized by a director twist angle in range from 230° to 250°,

5 a front alignment layer, wherein an alignment direction is angularly displaced from 140° to 160° with respect to the predetermined reference axis,

a rear alignment layer, wherein an alignment direction is angularly displaced from -140° to -160° with respect to the predetermined reference axis, and

wherein at least one polarizer is a thin crystal film polarizer of negative birefringence.

10 18. The liquid crystal display according to Claim 17, further comprising a backlighting system positioned on a rear side of the display.

19. The liquid crystal display according to Claim 17 or 18, further comprising an additional reflecting layer on the rear side of the display.

15 20. The liquid crystal display according to Claim 19, wherein the reflecting layer has a specular reflection characteristic.

21. The liquid crystal display according to Claim 19, wherein the reflecting layer has a diffusive reflection.

22. The liquid crystal display according to any of Claims 17-21, further comprising a transfective layer on the rear side of the display.

20 23. The liquid crystal display according to Claim 22, wherein the transfective layer has a specular reflection.

24. The liquid crystal display according to Claim 22, wherein the transfective layer has a diffusive reflection.

25 25. The liquid crystal display according to any of Claims 17-24, wherein the thin crystal film polarizer is made from at least one dichroic dye material comprising aromatic rings, and an interplanar distance along the transmission axis is 3.4 ± 0.3 Å.

26. The liquid crystal display according to Claim 25, wherein the dichroic dye material is heterocyclic.
27. The liquid crystal display according to Claim 25 or 26, wherein the dichroic dye is capable of forming a stable lyotropic liquid crystal.
- 5 28. The liquid crystal display according to any of Claims 17-27, further comprising an antireflective or antiglare coating on the front of the display.
29. The liquid crystal display according to any of Claims 17-28, wherein a diffuse light-scattering material is incorporated into at least one layer.
- 10 30. The liquid crystal display according to any of Claims 17-29 wherein the thickness of the layers is selected in order to provide the maximum interference intensity at the front side of the display for the light within the wavelength region of 530 nm to 580 nm.
31. The liquid crystal display according to any of Claims 17-30, wherein at least one polarizer layer is placed inside the liquid crystal display.
- 15 32. The liquid crystal display according to any of Claims 17-31, wherein the thin crystal film polarizer additionally functions as a color filter.